

# SERVICE MANUAL & PARTS LIST (with price)

## SF-4300R (LX-546)

OCT. 1994



SF-4300R

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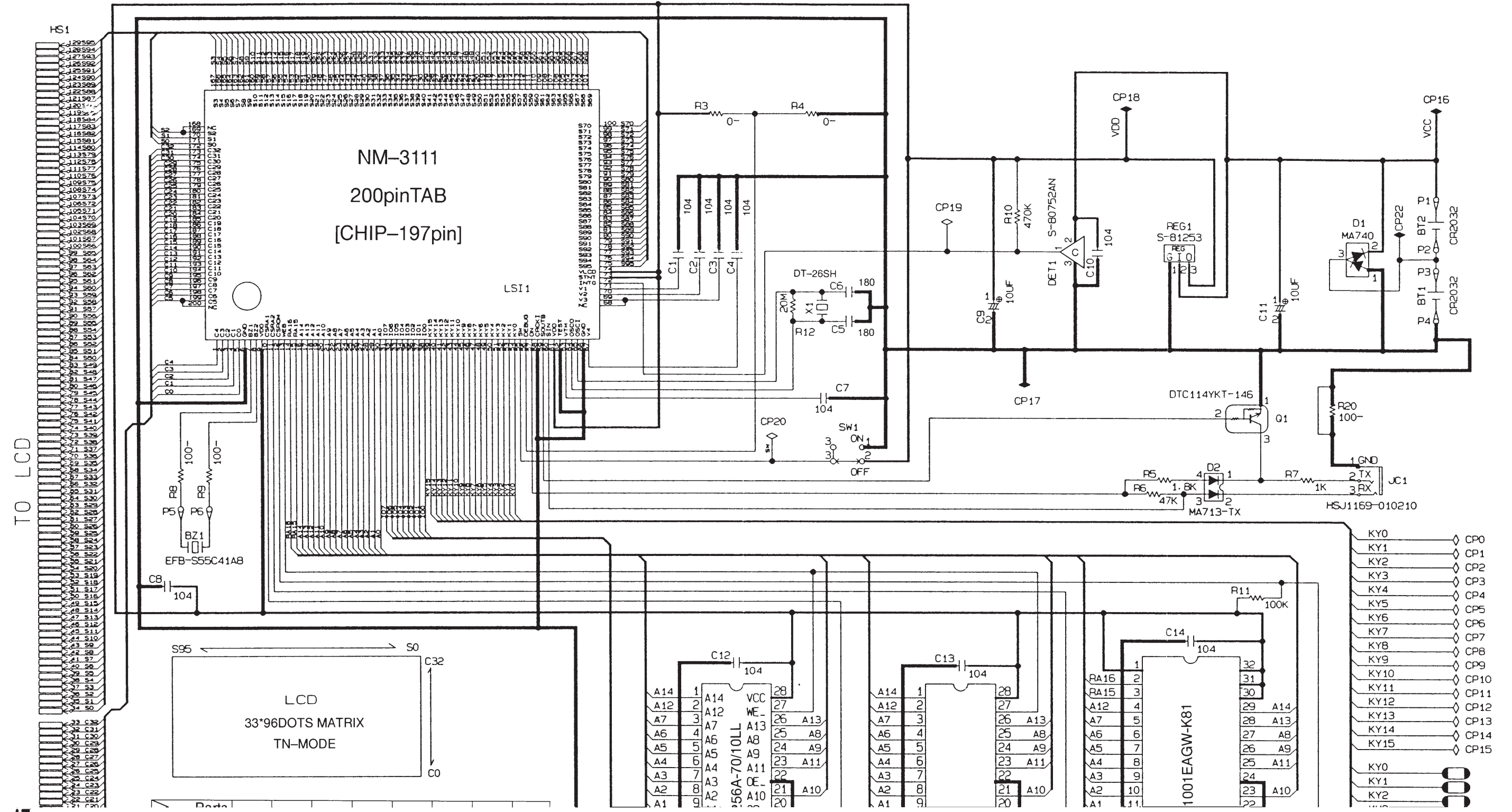
# CASIO®

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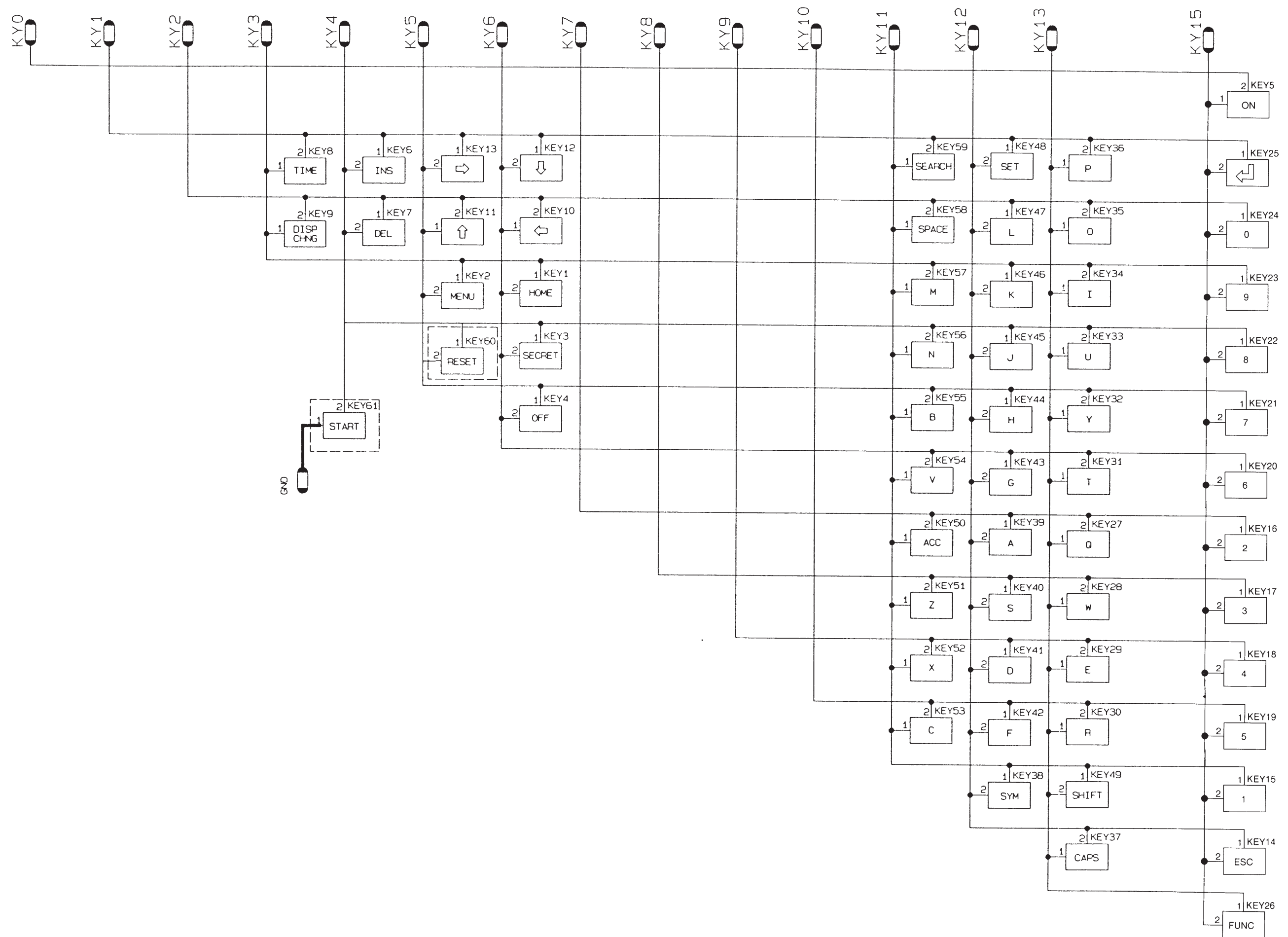
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1. SCHEMATIC DIAGRAM

1-1. MAIN PCB



1-2. KEY MATRIX



## 2. SPECIFICATIONS

### Main Modes:

Telephone Directory, Memo, Schedule Keeper, Reminder, Calendar, Home Time, World Time and Calculator.

### Data storage:

Storage and recall of telephone, memo, schedule, reminder data; calendar display; secret area; editing; memory status display.

### Clock:

World time; reminder alarm; schedule alarm; daily alarm; accuracy under normal temperatures:  $\pm 3$  seconds average.

### Calculation:

10-digit arithmetic calculations; arithmetic constants (+, -,  $\times$ ,  $\div$ ); independent memory; percentages; square roots; 20-digit approximations; date calculations; other mixed calculations.

### General:

**Display element:** 16-column  $\times$  4-line LCD

**Memory capacity:** 32 KB (28579 bytes)

**Main component:** LSI (The LX-546AQ is with an outside ROM, LSI4.)

**Power supply:** 2 lithium batteries (CR2032)

**Power consumption:** 0.05W

### Battery life:

Approximately 400 hours continuous operation in Telephone Directory

Approximately 350 hours repeating one minute of input and 10 minutes of display in Telephone Directory

Approximately 12 months for memory back up

**Auto power off:** Approximately 6 minutes after last key operation

**Operating temperature:** 0°C ~ 40°C (32°F ~ 104°F)

### Dimensions:

Unfolded: 9.6H  $\times$  122W  $\times$  158.5Dmm ( $\frac{3}{8}$ "H  $\times$  4  $\frac{3}{4}$ "W  $\times$  6  $\frac{1}{4}$ "D)

Folded: 12.4H  $\times$  122W  $\times$  81.5Dmm ( $\frac{1}{2}$ "H  $\times$  4  $\frac{3}{4}$ "W  $\times$  3  $\frac{1}{4}$ "D)

**Weight:** 89g (3.1 oz)

### Current consumption:

Power switch	TYP. [ $\mu$ A]	MAX [ $\mu$ A]
OFF	—	20
ON	—	550

### Storage Capacity:

The 32K bytes memory capacity includes a 28579 bytes user area. The following shows examples of what this means for the storage of data in each mode.

### Telephone Directory:

Approximately 1360, under the following conditions: 8-character name  
10-character telephone number

Approximately 680, under the following conditions: 8-character name  
10-character telephone number  
20-character address

### Memo:

Approximately 1290, 20-character memos

**Schedule Keeper:**

Approximately 890, under the following conditions:

1 item per day, 20 characters per item

30 days per month

Starting time specified, alarm time set

Approximately 1020, under the following conditions:

1 item per day, 20 characters per item

30 days per month

Starting time specified, no alarm time

**Reminder:**

Approximately 1680, under the following conditions: 10 characters per item

Alarm time set

Approximately 1900, under the following conditions: 10 characters per item

No alarm time

### 3. TO REPLACE THE BATTERIES

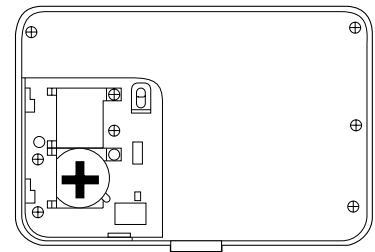
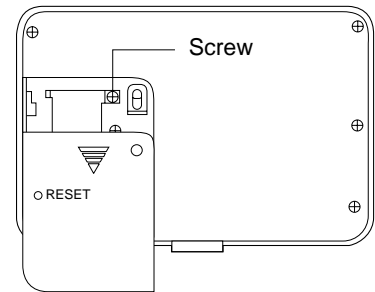
- 1) Loosen the screw on the back of the SF-4300B that holds the battery compartment cover in place, and remove the cover.
- 2) Loosen the screw that secures one of the two battery holders in place and remove the battery holder.

#### Caution

**Be sure to remove only one battery at a time.**

**Otherwise, you will lose all data stored in memory.**

- 3) Replace the old battery with a new one, making sure that the positive (+) side of the new battery is facing up (so you can see it).
- 4) Replace the battery holder and secure it by tightening its screw.
  - Be careful that you do not over tighten the screw.
- 5) Repeat steps 2) through 4) for another battery.
  - Be sure to replace all two batteries. Never mix old batteries with new ones, and be sure to use CR2032 lithium batteries only.
- 6) After you replace all two batteries, replace the battery compartment cover and secure it by tightening its screw.
  - Be careful that you do not over tighten the screw.

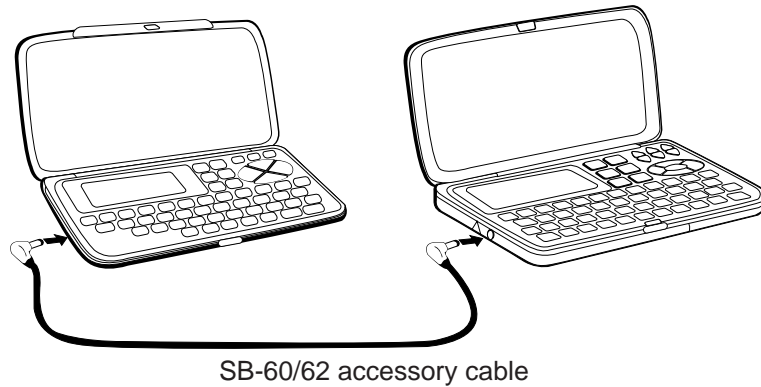


## 4. DATA TRANSFER

SF-4300R can transfer customers data to other SF-4300R with memory protection only when replacing the LCD or the outer case. How to transfer the data.

\* Before connecting the cable (SB-60/62), be sure to reset the slave machine to clear all data.

- 1) Turn off the power switch and connect the two units using the cable (SB-60/62) as shown in the drawing.



- 2) Turn on the power switch of each machine.
- 3) The slave machine must be set the date of Feb. 3rd, 1901 into the memory under the calculator mode.

Operation: 1. Press **ON** **MENU**  
2. Select "CAL" mode or press **6**.

3. **1**

TIME
DATE

**2**

TIME
DATE

**3**

TIME
DATE

**M+**  
**R**

M	SUN
1901/ 2/ 3	

If you don't set the date, the "PASSWORD" isn't transferred to the slave machine.



## Setting up for Data Communications

The following procedures describe what you should do to set up for data communications between two SF Units or between an SF Unit and a personal computer. In addition to hardware connections, it details how to set up the communications parameters and how to set up the SF-4300R to receive data. By following these instructions carefully, you can be ensured of successful communications every time.

### To connect two SF Units

1. Check to make sure that the power of the two SF Units is switched off.
2. Remove the covers from the connectors on the two SF Units.
3. Connect the two SF Units using the optional SB-60/62 cable. You can also connect them using an SB-60/62 cable.

### Important

Be sure to replace the connector covers on the SF Units when you are not performing data communications.

- 4) Check the hardware parameters.
  1. Select "TEL" mode or press ① under MENU screen.
  2. Press FUNC twice to display the second function menu.

**FUNC** **FUNC**

1\* TO SECRET AREA  
2 ALL DELETE  
3 LABEL EDIT  
4 DATA COMM

**CAPS**



\* If the password isn't registered in the SF unit, display shows **X** instead of "1".

- You can perform the above operation while the initial screen of the Memo Mode, Schedule Keeper, Calendar, or Reminder is displayed also.

3. Press 4 to select DATA COMM.

**4**

1 SEND  
2 RECEIVE  
3 SET UP PAR.

**CAPS**



4. Press 3 to select SET UP.

**3**

\*\* SET UP PAR. \*\*\*  
PARITY E O **N**  
BIT LENGTH 7 8  
BPS 4800 9600

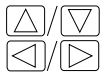
**CAPS**



• **N** is blinking.

5. If the units have another condition, reset as above.

- To change the parameters

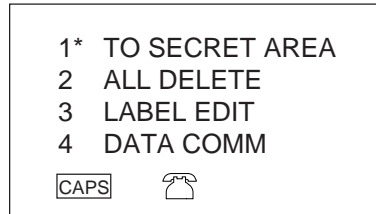


1. Use the and cursor keys to change the selected parameter on the display.
2. Use the and cursor keys to change the high-lighted setting of the currently selected parameter.
3. Press SET to store them in memory.



5) Set up the slave machine

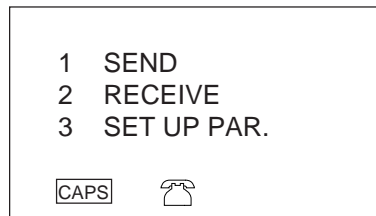
1. While an initial screen is displayed, press FUNC twice to display the second function menu.



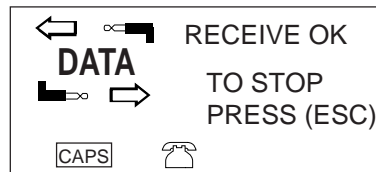
\* If the password isn't registered in the SF unit, display shows **X** instead of "1".

- You can perform the above operation while the initial screen of the Memo Mode, Schedule Keeper, Calendar, or Reminder is displayed also.

2. Press 4 to select DATA COMM.

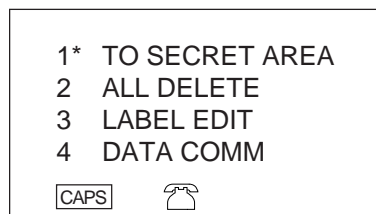


3. Press 2 to select RECEIVE.



6) Set up the customer's machine.

1. While an initial screen is displayed, press FUNC twice to display the second function menu.

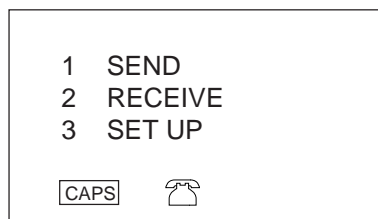


\* If the password isn't registered in the SF unit, display shows **X** instead of "1".

- You can perform the above operation while the initial screen of the Memo Mode, Schedule Keeper, Calendar, or Reminder is displayed also.

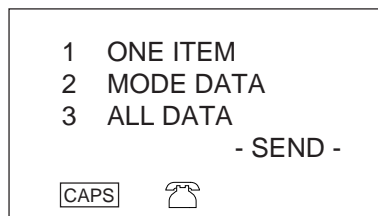
2. Press 4 to select DATA COMM.

4



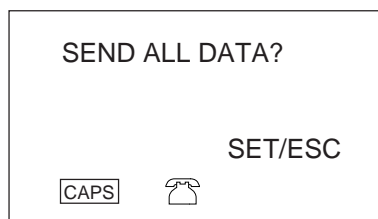
3. Press 1 to select SEND.

1



4. Press 3 to select ALL DATA.

3



5. Press SET to start the send operation or ESC to abort the operation without sending anything.

SET or ESC



- Data is send in the sequence: Telephone Directory, Memo Mode, Reminder Mode, Schedule Keeper, Calendar.
  - To abort the send operation at any time, press ESC.
  - If an error occurs during the send operation, the message "TRANSMIT ERROR!" appears on the display. Press ESC to clear the error message.
6. After the send operation is complete, the display returns to the initial screen of the mode you were in when you started this procedure.

## 5. OPERATION REFERENCE

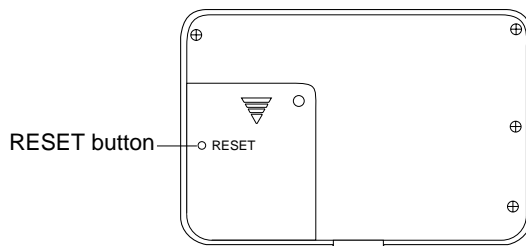
### 5-1. RESET OPERATION

The following procedure erases all data stored in the memory of the SF Unit.

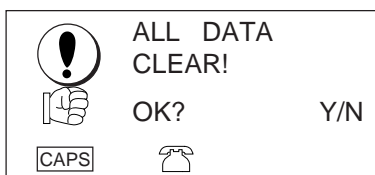
Perform the following operation only when you want to delete all data and initialize the settings of the SF Unit.

Remember-you should always keep copies of important data by writing it down, by transferring it to a personal computer or other SF Unit.

**To reset the SF Unit's memory**



1. Switch on power and press the **RESET** button with a thin, pointed object.



#### **Warning!**

*The next step deletes all data stored in the SF Unit's memory. Make sure that you really want to delete the data before you continue!*

2. Press **Y\*** to reset the memory and delete all data or **N** to abort the reset operation without deleting anything.

\* Note that the letter key you press to indicate "yes" depends on the system language, as noted below.

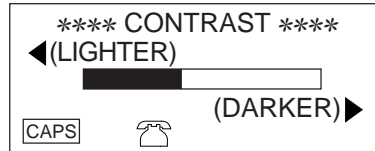
Czech: <b>A</b>	English: <b>Y</b>	Spanish: <b>S</b>	Hungarian: <b>I</b>
Polish: <b>T</b>	Portuguese: <b>S</b>	Russian: <b>Y</b>	

Following the reset operation described above, the Home Time display appears and the SF Unit settings are initialized as noted below.

Home Time:	12-hour format
	JAN/1/1994
	AM/12:00 00
Zone:	London(LON)
World Time:	New York(NYC)
Daily Alarm:	12:00 PM
Menu Mode:	Telephone mode
Language:	English
Sound:	Schedule alarm → ON
	Reminder Alarm → ON
	Daily alarm → OFF
	Key → ON
Character input:	CAPS

## 5-2. TO ADJUST THE DISPLAY CONTRAST

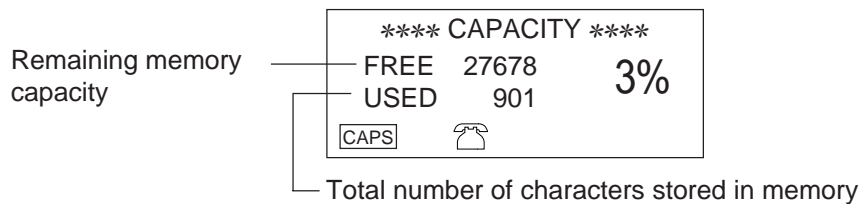
- 1 Enter the Telephone Directory Mode.
  - You could enter any mode except the Calculator mode here.
- 2 Press **SHIFT** and confirm that the "S" indicator is on the display.
- 3 Press **CONT**.
- 4 Use the ◀ and ▶ keys to adjust the contrast.



- 5 After you are finished, press **ESC** to clear the contrast adjustment display.

## 5-3. TO CHECK THE MEMORY STATUS

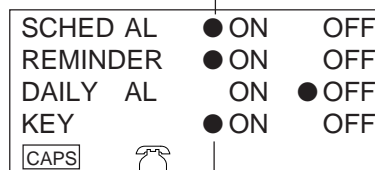
Hold down **SHIFT CAPA** to display a screen that shows the current memory status. To clear the memory status display, release **CAPA**.



## 5-4. THE SOUND MENU

The sound menu lets you switch the key input tone and the various alarms of the SF Unit on and off.

Flashing dot indicates currently selected item



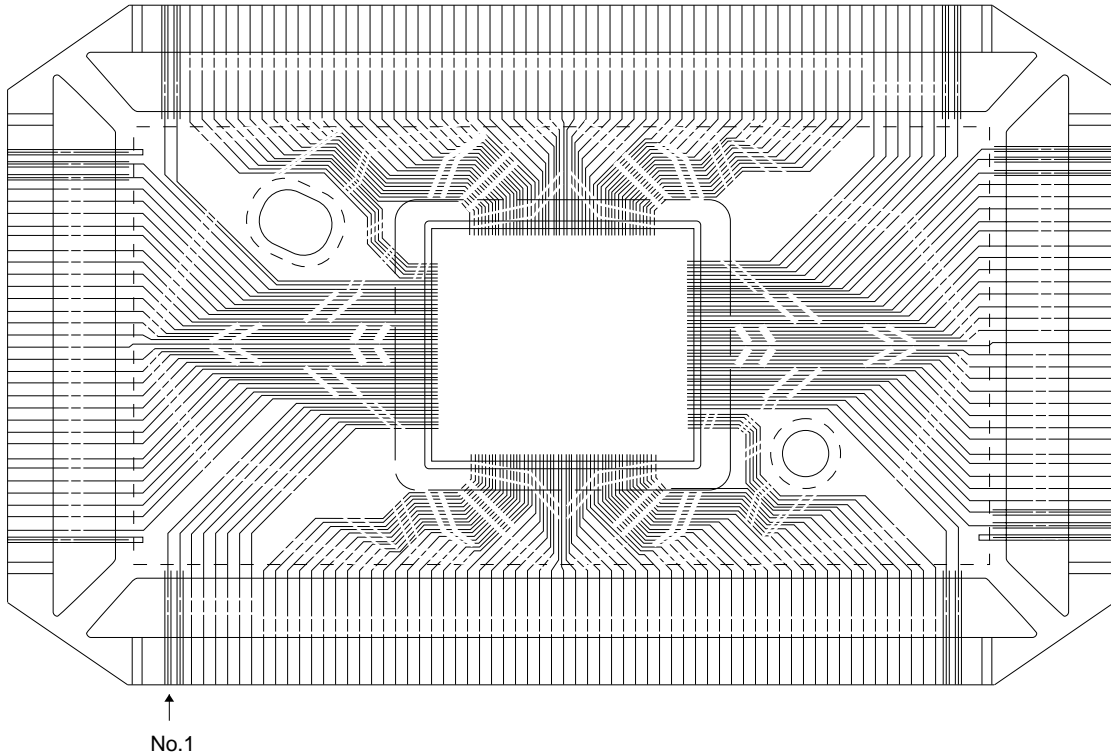
Dot indicates on/off status

The on/off status of each **SOUND** menu items is indicated by a dot, and the dot that is flashing on the menu is the one that is currently selected.

Use ▲ and ▼ to change the currently selected (flashing) item. Use ◀ and ▶ to switch the currently selected item on and off.

## 6. LSI, IC (Pin function)

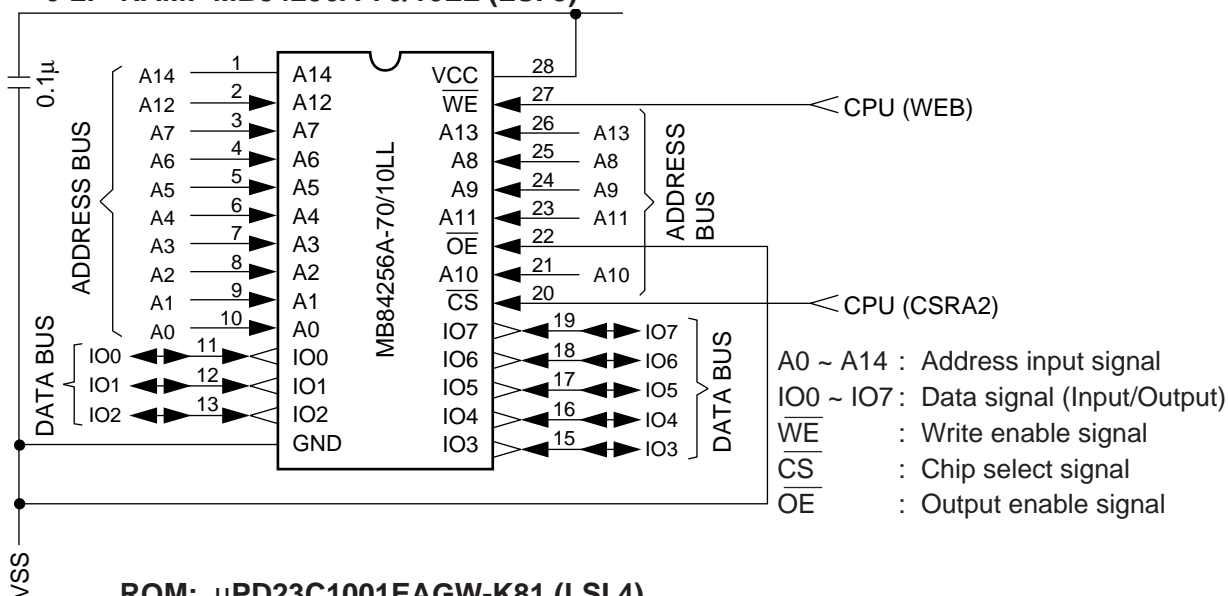
### 6-1. CPU



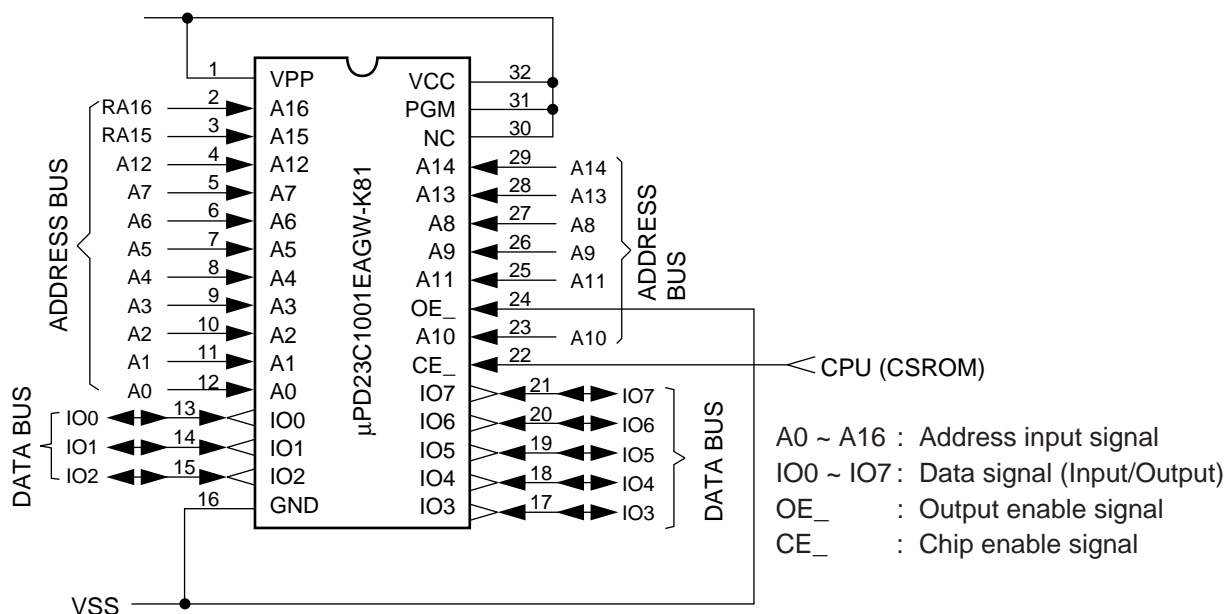
Pin No.	Signal	I/O	Function
1 ~ 5	C0 ~ 4	Out	Common Signal for display
6	GND	In	GND /0[V]
7,8	BZ1,2	Out	Buzzer terminal
9	VDD	In	Power supply/5.3[V]
10	CSRA1	Out	Chip enable signal (Not used)
11	CSRA2	Out	Chip enable signal for RAM
12	CSROM	Out	Chip enable signal for ROM (only used in LX-546AQ)
13	WEB	Out	Write enable signal for RAM
14,15	RA15,16	Out	Address bus for ROM (only used in LX-546AQ)
16 ~ 30	A0 ~ 14	Out	Address bus
31 ~ 38	IO0 ~ 7	I/O	Data bus
39 ~ 54	KY0 ~ 15	I/O	Key signal
55	SW	In	Battery switch (On: "L"/0[V] Off: "H"/6[V])
56	DEBUG	-	Test for manufacturer
57	ON	Out	Data communication enable
58	CRCKI	In	GND/0[V]
59	SOUTB	Out	Transmission data output
60	SIN	In	Transmission data input
61	VDD	In	Power supply/5.3[V]
62	TEST	-	Test for manufacturer
63	VTM	-	Not used

Pin No.	Signal	I/O	Function
64,65	OSC I/O	I/O	Clock terminal (DT-26S)
67,69~71	V1 ~ 4		Voltage for LCD driver OFF: 0[V]      ON: V1: 0.64(Light) ~ 1.29(Dark)[V] V2: 1.29 ~ 2.56 [V] V3: 3.99 ~ 2.71 [V] V4: 4.64 ~ 3.99 [V]
68	NC	-	Not used
72	INTO	In	Low battery detection      INTO<5.2[V]=> No power on
73	STNT	-	GND/0[V]
74	VLCD	In	Power supply/5.3[V]
75 ~ 171	S0 ~ 95	Out	Segment signal for display
172 ~ 199	C5 ~ 32	Out	Common signal for display
168, 200	NC	-	Not used

## 6-2. RAM: MB84256A-70/10LL (LSI 3)

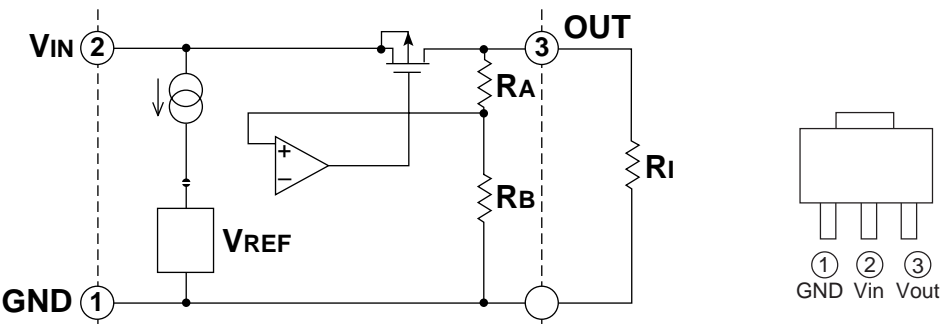


## ROM: μPD23C1001EAGW-K81 (LSI 4)



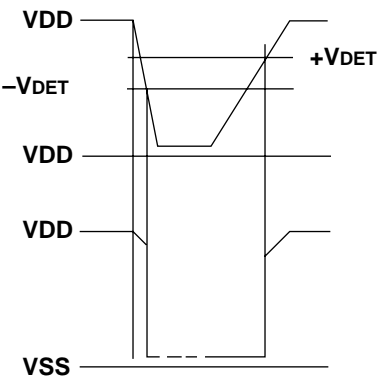
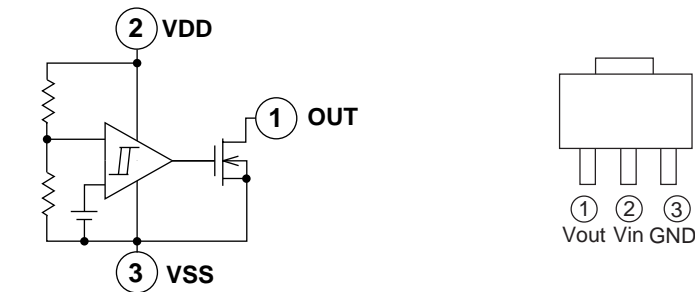
**6-3. VOLTAGE REGULATOR: S-81253SGUP (REG1)**

Output Voltage (Vout):  $5.3\text{V} \pm 5\%$



**6-4. VOLTAGE DETECTOR: S-80752AN (DET1)**

Detection Voltage( $-V_{DET}$ ):  $5.2\text{V} \pm 2.5\%$   
[5.07 V (MIN) ~ 5.33 V (MAX)]

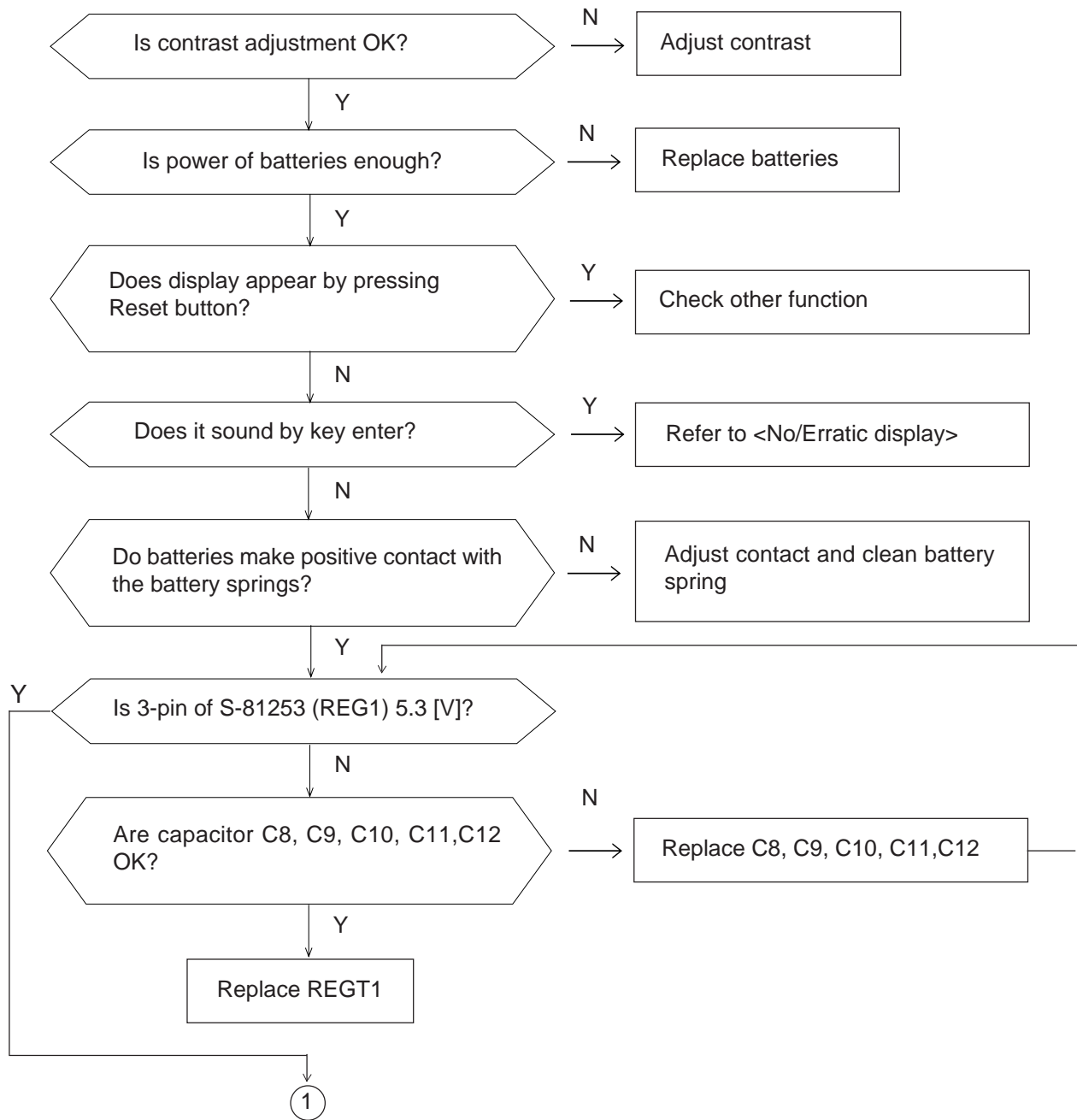


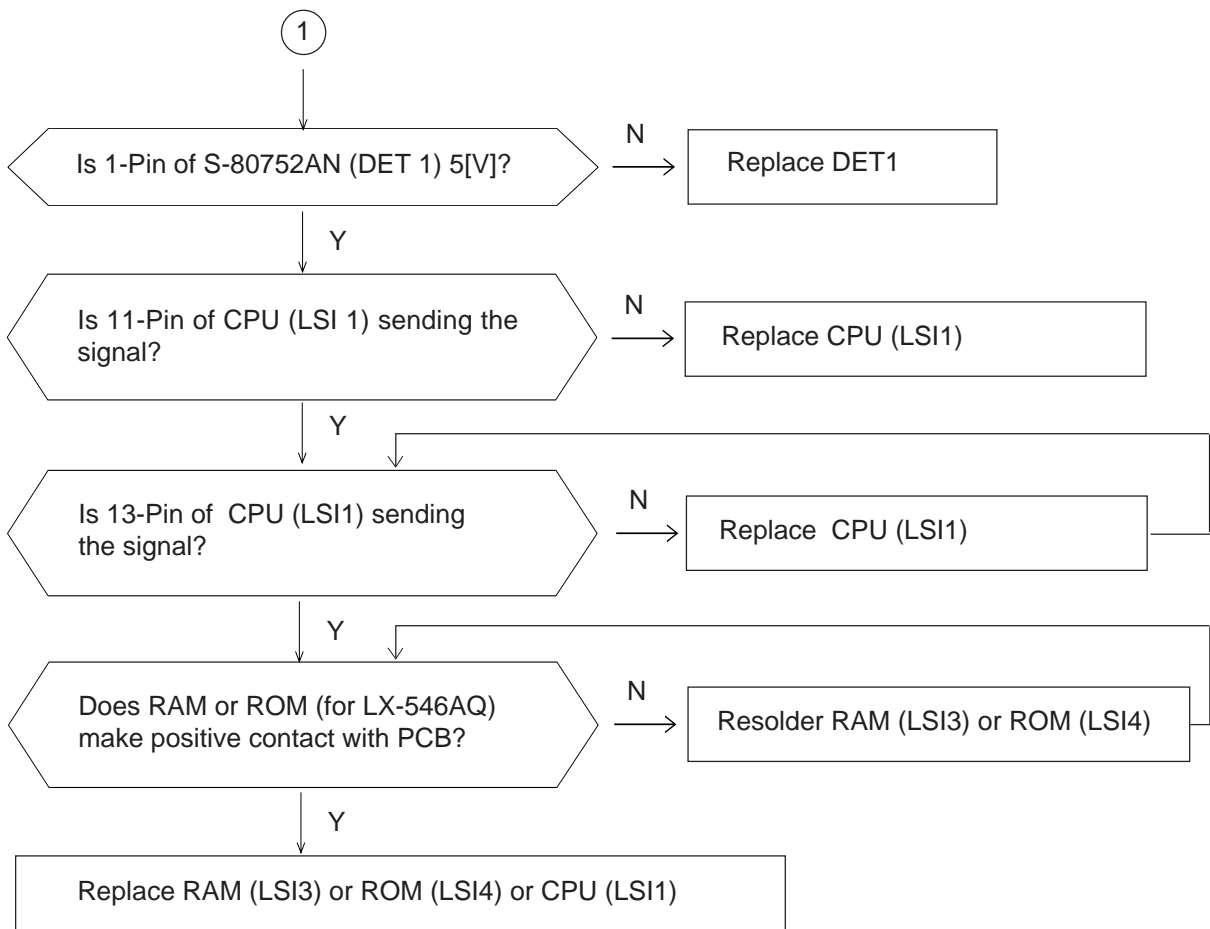
Input voltage	Output voltage
$>5.2\text{ V}$	5 V
$<5.2\text{ V}$	0 V



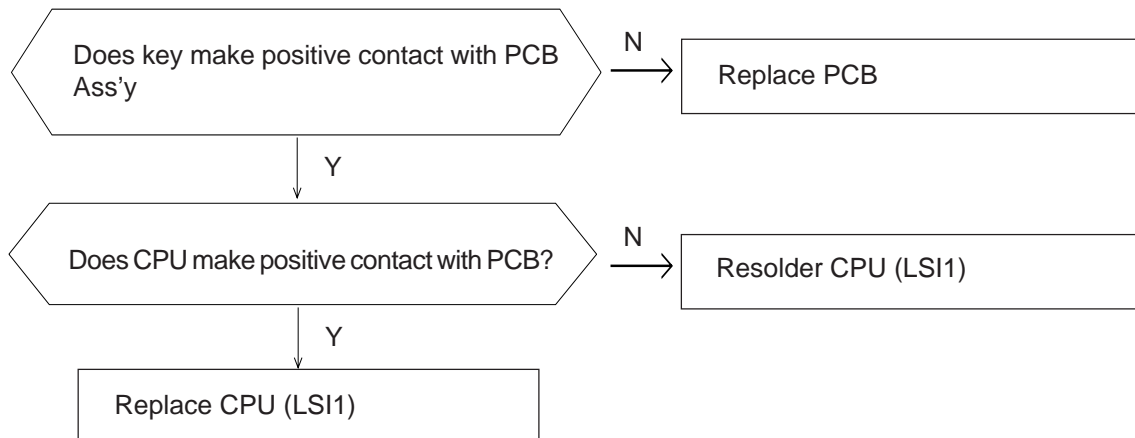
## 7. TROUBLESHOOTING

< No power on >

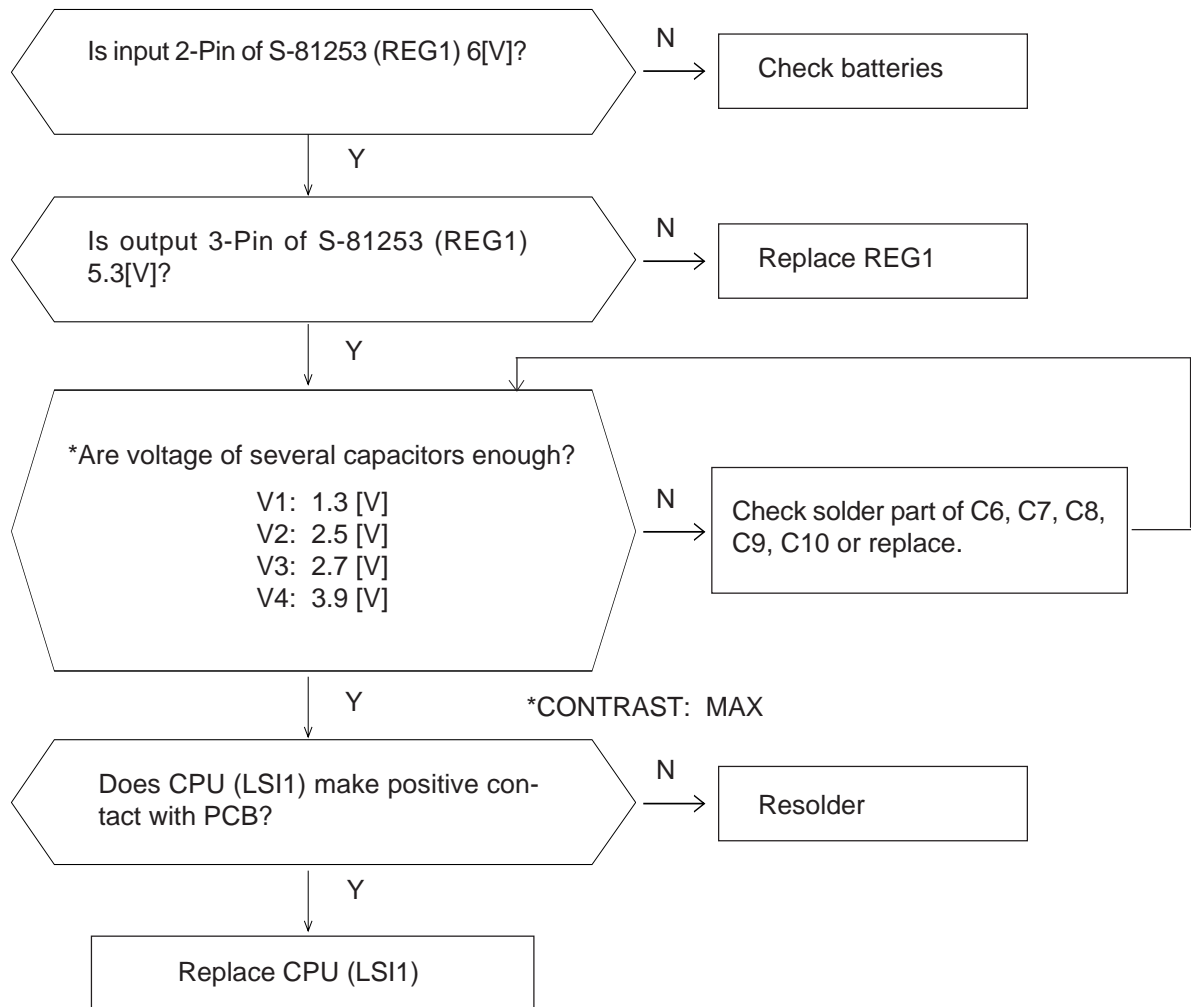




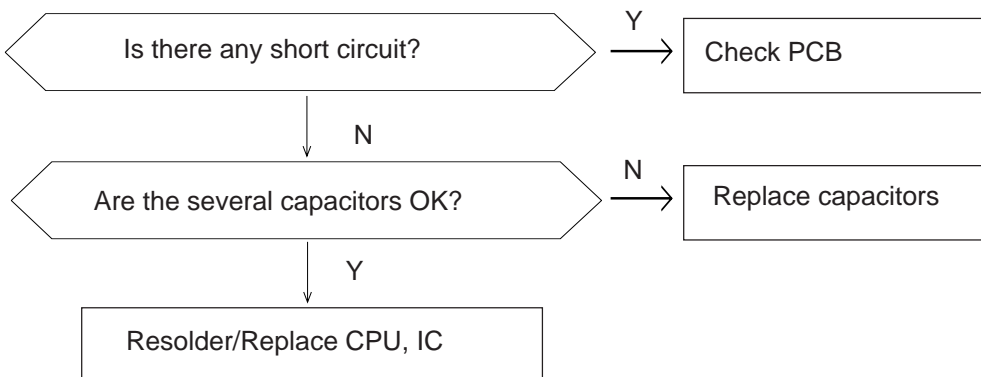
< No key input >



< No/Erratic display >




< High current consumption >



## 8. HARD CHECK

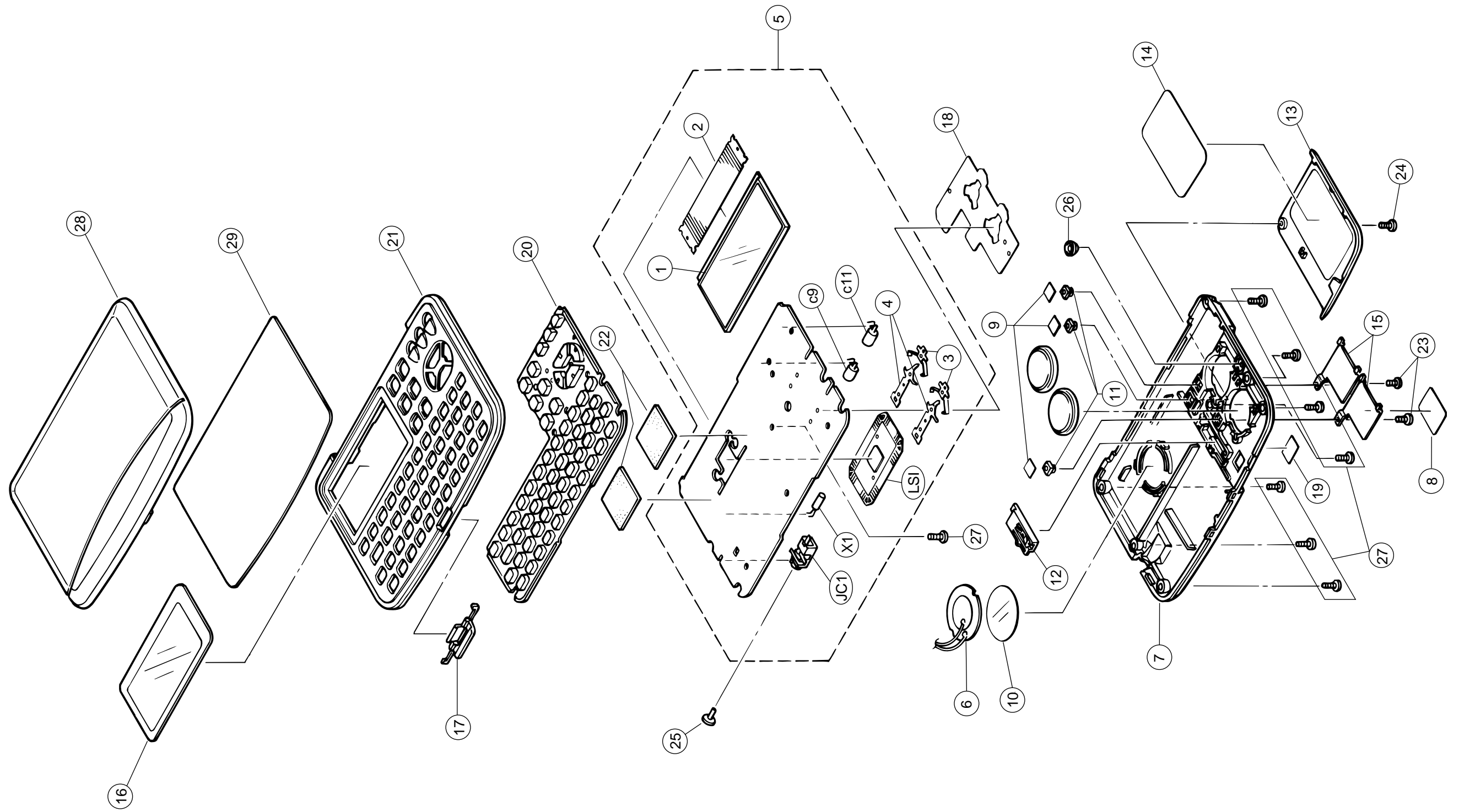
No.	OPERATION	DISPLAY	NOTE
1	Turn on while short the short pad (KEY61).	SELF TEST PROG. PRESS SEARCH QUIT BY OFF CASIO AUG. 1993	The short pad is located behind the tape ⑰.
2	SEARCH	TEST MENU 1 DISP 2 MEMORY 3 KEY 4 BUZZER 5 I/F	Main menu
3	1	DISP 4 RVS. 1 WHITE 5 FRAME 2 BLACK 6 DOT 4 3 CHECK. 7 TIME	Display check
4	1	No display	
5	2	All dots display	
6	3	Checker display	
7	4	Reverse checker display	

No.	OPERATION	DISPLAY	NOTE
8	5	<div>FRAME</div>	
9	6	<div>Dots appear at 4 corners.</div>	
10	7	TIME DISPLAY 00:00:00	Check if timer is working.
11	ESC	TEST MENU 1 DISP      2 MEMORY 3 KEY 4 BUZZER 5 EXT	
12	3	KEY            1 RANDOM 2 AUTO	Key check
13	2	No display	
14	<div> HOME/WORLD    MENU   OFF   ON   INS   DEL  TIME/DATA    DISP CHNG  ◀ ▲ ▼ ▶  ESC..... ↵  FUNC..... P  CAPS..... SET  SHIFT..... SPACE </div>	00 01 02 03 04 ..... ..... 56 57	<ul style="list-style-type: none"> <li>• Check the key No. appears on the display.</li> <li>• Check the key sounds.</li> <li>• To return to the menu mode, enter SEARCH.</li> </ul>

No.	OPERATION	DISPLAY	NOTE
15	SEARCH	TEST      2 MEMORY MENU      3 KEY 4 BUZZER 1 DISP    5 EXT	
16	4	BUZZER    1 BEEP 2 ALARM1 3 ALARM2	Buzzer check
17	2	EXECUTING!!	Check the alarm 1 sound.
18	ESC	BUZZER    1 BEEP 2 ALARM1 3 ALARM2	
19	ESC	TEST      2 MEMORY MENU      3 KEY 4 BUZZER 1 DISP    5 EXT	
20	2	MEMORY    3 WR2 4 READ2 1 WR1      5 DUMP 2 READ1    6 CHKSUM	RAM check
21	1	WRITE1	

No.	OPERATION	DISPLAY	NOTE
22	(After few seconds)	MEMORY    3 WR2 4 READ2 1 WR1       5 DUMP 2 READ1    6 CHKSUM	
23	<span>2</span>	EXECUTING	
24		COMPLETE 32KB	Check sound. If RAM has defect, error message will be appered.
25	<span>ESC</span>	MEMORY    3 WR2 4 READ2 1 WR1       5 DUMP 2 READ1    6 CHKSUM	
26	<span>5</span>	\$ 00001, 00002, 00004, 00008 00010, 00020, 00040, 00080 00100, 00200, 00400, 00800 01000, 02000, 04000, 08000 10000	The address of ROM (LSI4) should be appeared. (Only for LX-546AQ)
27	<span>ESC</span> <span>ESC</span>	TEST           2 MEMORY MENU          3 KEY 4 BUZZER 1 DISP        5 EXT	
28	Press "RESET" key.		

## 9. ASSEMBLY VIEW





A : LX-546AQ (With an outside ROM)

B : LX-546AR (Without outside ROM)

## 10. PARTS LIST

N	Item	Code No.	Parts Name	Specification	Quantity		M	FOB Japan N.R.Yen Unit Price	R
					A	B			
PCB ASS'Y									
N	5	6413 3140	PCB ass'y	DB20BX0300S	1	0		3,425	A
N	5	6413 3200	PCB ass'y	DB20BX0301Q	0	1		3,100	A
			(The two assemblies contain the following available elements.)						
	C1~4,C7	6510 4890	Chip capacitor	CP001A332T2	5	5	20	14	C
	C13	6511 7560	Chip capacitor	CP001A432T8	1	0	20	7	C
	C5,6	6510 5000	Chip capacitor	CP018F602T1	2	2	20	9	C
	C8,10,12	6511 7560	Chip capacitor	CP001A432T8	3	3	20	7	C
	C9,11	2803 6813	Capacitor	CB0011341R3	2	2	20	22	C
	D1	2390 2135	Diode	BC20MA740T0	1	1	5	50	C
	D2	6510 4940	Diode	BC10MA71307	1	1	5	53	C
	DET1	2105 3297	CMOS IC	S-80752AN-JG-T1	1	1	10	47	B
	JC1	3501 6538	Jack	HSJ1169-012010	1	1	5	56	C
N	LSI1	6411 2051	COB LSI	C312133A*2	1	0	1	970	A
N	LSI1	6412 6571	COB LSI	C312133A*8	0	1	1	970	A
N	LSI3	2011 6972	LSI (RAM)	MB84256A-70/10LL	1	1	1	510	B
N	LSI4	2011 9156	LSI (ROM)	μPD23C1001EAGW-K81	1	0	1	320	B
	Q1	6510 4760	Transistor	BBX114YT103	1	1	20	27	B
N	R10	6410 9500	Chip resistor	CC4703D11T3	1	1	20	5	C
N	R12	6511 7470	Chip resistor	CC1003311C9	1	0	20	5	C
N	R13	6510 4850	Chip resistor	CC2005311C0	1	1	20	2	C
	R3,20	6511 7440	Chip resistor	CC0000311C3	2	0	20	6	C
	R4,20	6511 7440	Chip resistor	CC0000311C3	0	2	20	6	C
N	R5	6512 1380	Chip resistor	CC1801D11E7	1	1	20	3	C
N	R6	6512 1410	Chip resistor	CC0473D11T3	1	1	20	3	C
	R7	6510 4770	Chip resistor	CC1001311C0	1	1	20	5	C
N	R8,9	6512 1360	Chip resistor	CC0012D11T6	2	2	20	3	C
	REG1	2105 3290	Regulator	S-81253SGUP-DIJ-T1	1	1	5	60	B
	X1	6510 4550	Crystal	BD0063P2509	1	1	5	55	B
	1	3335 4606	LCD	CD418-TS	1	1	1	350	A
	2	6409 6270	Hot melt film	FX200P40056	1	1	5	82	A
	3	6409 6300	Battery plate (+)	EF01DB20102	2	2	20	16	C
	4	6409 6310	Battery plate (-)	EF02DB10100	2	2	20	16	C
COMPONENTS									
N	6	3122 2380	Buzzer	EFB-S55C41A8	1	1	10	36	C
	7	6413 3210	Lower cabinet	FABDB201021	1	1	5	100	X
	8	6409 6210	Battery change label	HGC00001102	1	1	20	7	X
	9	6510 4440	Nut tape	HGFC0001206	3	3	20	6	X
	10	6510 4500	Buzzer tape	HGFC0000501	1	1	20	17	X
	11	6512 1080	Nut	MD100000602	3	3	20	13	X
	12	6408 5920	Switch knob ass'y	DB2AXX4A00M*1	1	1	20	30	C
	13	6409 6220	Battery cover	FADDB201001	1	1	20	29	X
	14	6409 6230	Battery cover label	HGC00001102	1	1	20	16	X
	15	6409 6120	Battery holder	ECDB1011108	1	1	20	26	X
N	16	6413 3160	PC sheet	EL5G0009409	1	1	5	75	C
	17	6409 6140	Push button	FB3DB201001	1	1	20	13	X
	18	6409 6150	Overlay mylar	EL4C0001105	1	1	10	27	X
	19	6409 6160	Mask tape	HGG00012808	1	1	20	7	X
	20	6409 6170	Rubber sheet	LADB2010001	1	1	1	200	C
N	21	6413 3170	Upper cabinet	FAADB201016	1	1	1	160	C

Notes: N – New parts

M – Minimum order/supply quantity

R – Rank

R – A : Essential

B : Stock recommended

C : Others

X : No stock recommended

A : LX-546AQ (With an outside ROM)

B : LX-546AR (Without outside ROM)

N	Item	Code No.	Parts Name	Specification	Quantity		M	FOB Japan N.R.Yen Unit Price	R
					A	B			
N	22	6413 3180	Sponge cushion	FH100027507	2	2	20	15	X
	23	6510 4310	Screw	MAA80006311	2	2	20	3	C
	24	6510 4350	Screw	MAA80006302	1	1	20	2	B
	25	6511 7160	RB insert	LC120000102	1	1	20	17	B
	26	6511 8400	Rubber sheet	LADB0220105	1	1	20	10	C
	27	6512 0980	Screw	MAB20086306	8	8	20	2	X
	28	6413 3220	Hard case	FC1DB201023	1	1	5	88	X
N	29	6413 3230	Label	HGG00014908	1	1	1	120	X

Notes: N – New parts  
M – Minimum order/supply quantity  
R – Rank

R – A : Essential  
B : Stock recommended  
C : Others  
X : No stock recommended

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